FACILITY STATUS CHANGE FORM
(for DOE/RL-2010-34 Facilities)

Date Submitted:	Area:	Control #:
February 3, 2014	100D	D4-100D-003-1
Originator:	**Facility ID:**	
Clay McCurley	151D Primary Electrical Substation	
Phone:	**Action Memorandum:**	
942-8928	General Hanford Site Decommissioning Activities	

This form documents agreement among the parties listed below on the status of the facility D&D operations and the disposition of underlying soil in accordance with the applicable regulatory decision documents.

Section 1: Facility Status

☐ All removal actions require by action memo complete.

☒ Removal actions required by actions memo partially complete, remaining operations deferred.

Description of Completed Activities and Current Conditions:

Decontamination and Decommissioning: The following hazardous materials were removed prior to facility demolition: light bulbs, fuses containing lead, mercury switches, oils, grease, Regulated Asbestos-Containing Material (RACM), and polychlorinated biphenyl (PCB) containing equipment. Hazardous material removal and waste disposition was performed in accordance with the *Removal Action Work Plan for River Corridor General Decommissioning Activities*, DOE/RL-2010-034.

Demolition: The 151-D primary electrical substation (switch yard) was demolished in place in the 100-D area from October 2013 to January 2014. Most of the metal (e.g., steel, copper) that made up yard equipment, as well as residual oil remaining in that equipment, was recycled. The balance of the demolition debris (e.g., concrete pads) was loaded out and disposed of at the ERDF. Based on past uses of this facility, the radiological scoping surveys for the switchgear building (see Attachment 4 of D4-100D-003), and radiological surveys performed subsequent to the demolition of the 151-D switchgear building (see Attachment 4), radiological contamination was not expected during demolition.

Class I friable asbestos containing material (ACM), Class II non-friable ACM, and oil/grease containing polychlorinated biphenyls were the only contaminants of concern for demolition. The Class I ACM was abated prior to demolition and the portions of demolition that involved Class II ACM were performed under asbestos controls. The area was surveyed by GPS to delineate the extent of the excavations and below grade structures that were left for future remediation in accordance with the final Record of Decision for WIDS Site 100-D-75:1.

Description of Deferral (as applicable):

Backfill is deferred to facilitate the remediation of WIDS Site 100-D-75:1.

Section 2: Underlying Soil Status

☐ No waste site(s) present. No additional actions anticipated.

☒ Documented waste site(s) present. Cleanup and closeout to be addressed under Record of Decision.

☐ Potential waste site discovered during removal action. Waste site identification number <to be> assigned.

Cleanup and closeout to be addressed under Record of Decision.

Description of Current/As-Left Conditions:

All switch yard equipment, perimeter fence, and support pads were removed to -3 feet below grade and recycled or disposed at the ERDF. Two concrete vaults (located between the former switchgear building and concrete pads that supported the oil-containing circuit breakers) were demolished to -3 feet below grade. One was partially backfilled with borrow pit material and the other was partially backfilled with adjacent soil to eliminate safety concerns associated with steepened edges. Cement asbestos piping (embedded in concrete) greater than 3 feet in depth that provided conduit between yard support structures (concrete pads) was left buried in place undisturbed between pads.

FACILITY STATUS CHANGE FORM
(for DOE/RL-2010-34 Facilities)

Identification of Documented Waste Site(s) or Nature of Potential Waste Site Discovery (as applicable):
100-D-75:1 - 151-D Primary Electrical Substation Yard. This WIDS site consists of the entire fenced gravel switch yard. The WIDS designation is primarily due to the operation and maintenance of PCB containing electrical equipment. The WIDS site was impacted by D4 activities with the removal of some yard structures to 3 feet below grade. The 100-D-75:1 WIDS site will be recommended for cleanup by remove, treat and disposal under a final action Record of Decision.

Section 3: List of Attachments

1. Facility Information
2. Photographs of the 151D Primary Electrical Substation
3. Off-Site Acceptability Determination for 151-B and 151-D Substations
4. Radiological Scoping Surveys Performed Subsequent to 151D Switchgear Building Demolition
5. Post Demolition Visual Inspection of 151D Switch Yard
6. 151D Switch Yard GPS Surveys

Rudy Guercia _____ 2/3/2014

DOE-RL (Lead Agency) Date

DISTRIBUTION:

DOE: Rudy Guercia, A3-04
Document Control, H4-11
Administrative Record, H6-08 (100-DR-1 OU)
SIS Coordinator: Benjamin Cowan, H4-22
D4 EPL: Clay McCurley, L4-45
Sample Design/Cleanup Verification: Theresa Howell, H4-23
FR Engineering: Rich Carlson, N3-30
FR EPL: Dan Saueressig, N3-30

Attachment 1

Facility Information (3 pages)

151D Primary Electrical Substation

Facility Information

Introduction

This document provides information regarding the history, characterization, and final status at the completion of deactivation, decontamination, decommissioning and demolition (D4) activities of the 151D primary electrical substation (switch yard) located in the 100-D Area as shown in Figure 1 (Attachment 2).

Facility Description

The 151D switch yard shown in Figure 2 (Attachment 2) served as the primary source of electrical power for all facilities in the 100-D Area. It consisted of a fenced, gravel-bed yard measuring approximately 165 m (541 ft) on a side with the 151D switchgear building along the northern fence line. The switchgear building was demolished in April, 2013 and is not addressed in this document. The Facility Status Change Form (FSCF) documenting D4 of the switchgear building is found in Document No. D4-100D-003. A railroad spur entered the yard from the east and paralleled the north fence line.

Concrete pads of various sizes protruded from the crushed gravel bed throughout the yard, supporting a variety of electrical equipment, including transformers, power line towers and stands, and oil-filled circuit breakers (OCBs). The OCB stored in the northeast corner of the switch yard could not have been in use at this location. To be in service it would have had to be secured to a concrete pad and bolted to the overhead bus.

Two smaller transformers located near the center of the switch yard are old 181D transformers associated with WIDS Site 100-D-75:2. They were drained of their PCB oil on 7/12/2005 and relocated to the switch yard between 2008 and 2009.

Facility History

The 151D switch yard received 230 kV power from the Midway Substation and was first energized in August 1944. The three main transformers in the switch yard transmitted power, primarily via underground cables, to thirteen secondary substations and nine distribution substations located throughout the 100-D Area including transformers located at the 181-D River Pump House, 182D Head Houses, 183D Filter Houses, 184D Power House, 186D Water Treatment Plant, 190 Pump Houses, and 105D/DR Reactors. These facilities, in turn, distributed power to associated facilities. It continued to be used after the 105D and 105DR Reactors were shut down in the 1960s to provide power for occupied facilities in the 100 Area and backup power to the 100-N Area. It also provided power for pumping fire water for the 100 and 100-F Areas and for backup export water supply to the 200 Area.

A known PCB oil spill in the switch yard was remediated in 1995 but may not have been the only leak or spill because such events were not consistently recorded before about 1985 and there is anecdotal information from power operators that transformer spills and leaks were not uncommon. As a result, concrete pads supporting transformers or OCBs and surrounding soil may have PCB contamination. The switch yard was accepted as a waste site and listed in the Waste Information Data System (WIDS) as site 100-D-75:1 that will be recommended for cleanup by remove, treat, and disposal under a final Record of Decision.

The switchgear building and an adjacent microwave tower were demolished in April 2013 leaving in place the concrete floor and walls of the basement greater than 3 feet deep. The excavation was not backfilled since that portion of the scope would be performed with the demolition of the switch yard or remediation of the 100-D-75:1 WIDS site. With the exception of the transformer bushings, all equipment in the switch yard had been drained of oil several years earlier. Since the switch yard had no radiological contamination and no potential to emit (see Attachment 4 of D4-100D-003), a subcontractor specialized in recycling transformers and PCB oil was hired to drain and recycle the oil as well as remove and recycle all six transformers from the switch yard. EPA reviewed and concurred with the organization and destinations selected for this work (see Attachment 3). Figure 3 in Attachment 2 documents two of the large transformers being secured to trailers for transport.

Demolition of the switch yard began in October, 2013. Figure 4 (Attachment 2) provides an aerial view of D4 activities in progress. Figure 5 (Attachment 2) provides an overview of the switchyard at the completion of demolition. Most of the metal (e.g., metal towers, stands, transformers) was recycled.

All concrete pads supporting yard equipment were removed to -3 feet below grade. The buried cement asbestos pipe encased in concrete that provided conduit between facility structures (e.g., pads supporting transformers and switchgear building) was demolished under asbestos controls where it surfaced at the pads. Elsewhere in the yard, the pipe was greater than 3 feet in depth so it was left in place undisturbed and backfilled where it had been exposed. The switch yard was visually inspected for stains and anomalies on January 16, 2014 after demolition was completed. A copy of the inspection is provided in Attachment 5.

Pre and post demolition GPS surveys of the switch yard were performed. Copies of the survey reports are provided in Attachment 6. Only a small amount of backfill (from a nearby borrow pit) was imported to eliminate safety concerns associated with steepened edges in the larger of the excavations left behind. The other excavations were partially backfilled with adjacent soil to eliminate safety concerns.

Radiological Scoping and IH Baseline Surveys

The 151D switch yard was never posted for radiological conditions. Based on historical research of past uses, radiological contamination was not expected and radiological scoping surveys found no contamination. A survey of ceramic insulators (bushings) on site identified radiological activity but this activity, inherent within the ceramic matrix, was determined to be naturally occurring radioactive material (NORM). The switch yard was not listed on the Hanford Site Beryllium Controlled Facilities List however, it was surveyed prior to demolition and determined to be a beryllium-clean facility.

The switch yard was inspected and sampled for asbestos on July 24, 2013 (CCN 173954). Cloth covered wires in cabinets were found to contain friable asbestos. Buried cement asbestos pipe encased in concrete was presumed to contain asbestos, based on construction drawings. Bushings on top of OCBs and other equipment in the yard still contained some PCB oil and grease. Table 1 summarizes the radiological and beryllium surveys and the asbestos and PCB sampling performed. Pre and post demolition surveys using the Global Positioning Environmental Radiological Surveyor (GPERS) were not performed since the switch yard was not radiologically contaminated. Table 2 identifies the contaminants of concern (COC) and summarizes how each COC was managed.

Table 1: Summary of Characterization Surveys at 151D

Type	Quantity	Method Detection Limits	Results
Asbestos	5 samples	1% weight	Friable ACM was indentified on cloth covered wires in cabinets and conduits. Buried cement asbestos piping (conduit) was presumed to be ACM.
IH Surveys and Beryllium Characterization	1 survey	Wipe Samples: clean release level for surface contamination - 0.2 µg/100cm^2 Bulk Samples: Hanford site background level – 2 µg/g	Assessment documents the building is Be clean.
Radiological Scoping Surveys	2 surveys	Beta-gamma: 1,000 removable/ 5,000 fixed[a] Alpha: 20 removable/ 500 fixed[a]	No contamination identified (see Attachment 4).
Polychlorinated biphenyls	5 samples	50 ppm	PCBs identified in oil and grease collected from bushings on top of OCBs and other equipment.

[a] – dpm/100 cm^2

Table 2: Contaminants of Concern for Facility Demolition

Contaminant of Concern	Management Practice
Class I Friable Asbestos Containing Material (ACM) and Class II Non-friable ACM	Wiring in cabinets that contained Class I friable ACM was abated prior to demolition. Cement asbestos piping (conduit) that surfaced at concrete pad was demolished under asbestos controls. Cement asbestos piping elsewhere in the yard was greater that 3 feet deep and left in place for remediation of WIDS Site 100-D-75:1 (deferred to final Record of Decision).
Polychlorinated biphenyls	Oil was recycled off site. Components containing grease were disposed at ERDF.

Attachment 2

Photographs of the 151D Primary Electrical Substation (3 pages)

151D Primary Electrical Substation

Figure 1. Aerial View of 100-D Area in October 2012 (facing north)

Figure 2. Aerial View of 151D Switch Yard in June 2012

151D Primary Electrical Substation

Figure 3. Transformers Being Secured for Transport to Recycling Facility

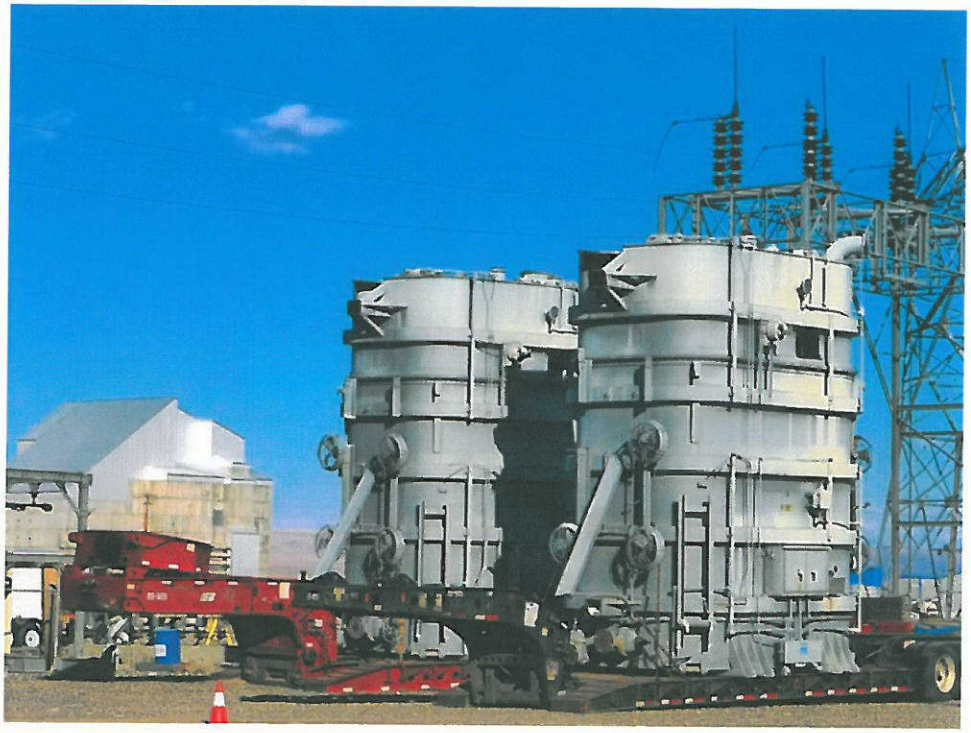


Figure 4. Aerial View of 151D Switch Yard During Demolition Activities in November 2013

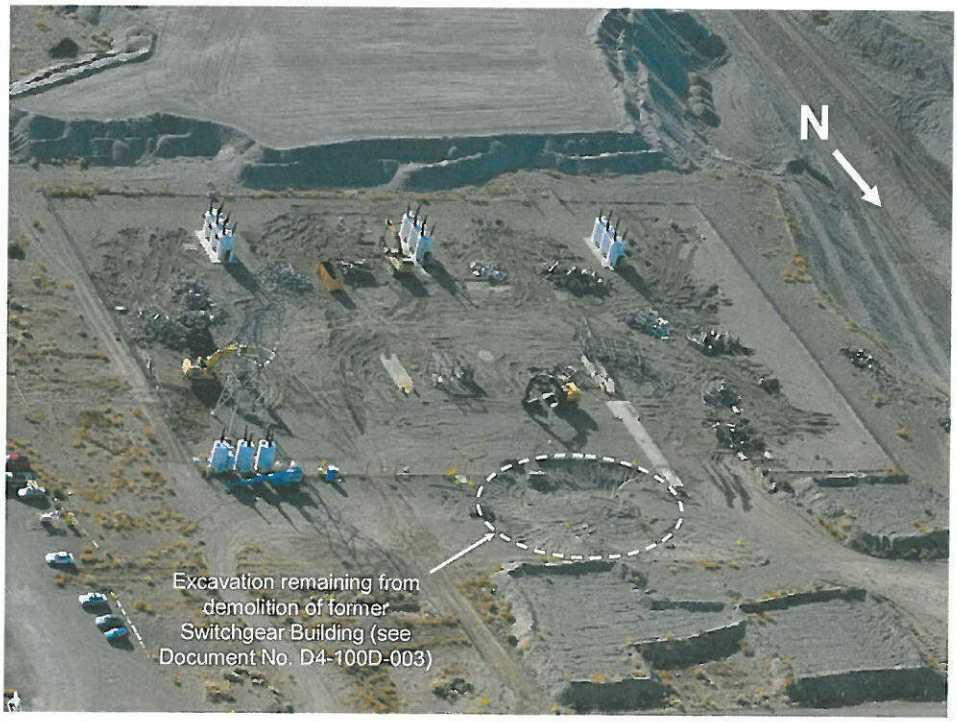


Figure 5. Aerial View of 151D Switch Yard After Completion of Demolition Activities in January 2014

Attachment 3

Offsite Acceptability Determination for 151-B and 151D Substations (5 pages)

151D Primary Electrical Substation

McCurley, Clay D

From: McCurley, Clay D
Sent: Thursday, January 30, 2014 1:10 PM
To: ^WCH Document Control
Cc: Strand, Christopher P
Subject: Off-Site Acceptability Determination for 151-B and 151-D Substations

Folks. Please chron this email per the subject to document EPA concurrence with sending materials from the 151-B and 151-D Substations for recycling/disposal at the off-site facilities specified below. Also, please let me know which CCN has been assigned. Contact me if you have any questions. Thanks.
Clay

From: Strand, Christopher P
Sent: Monday, September 09, 2013 8:32 AM
To: Hynes, Robert T; Guercia, Rudolph F; Douglas, L M (Michael); Allen, Mark E; McCurley, Clay D; Winterhalder, John A
Cc: McBride, Donald J
Subject: FW: Off-Site Acceptability Determination for 151B and 151D Substations

Mike, Bob,

The last of the TCI facilities (West Virginia) has been approved as an off-site facility for the substation waste streams.

Thanks,

Chris
554-2720

From: Einan, Dave [mailto:Einan.David@epa.gov]
Sent: Monday, September 09, 2013 8:06 AM
To: Strand, Christopher P
Subject: RE: Off-Site Acceptability Determination for 151B and 151D Substations

I've now heard back and Environmental Protection Services, EPA ID WVD988770673 is acceptable to receive waste.

Dave Einan
509-376-3883

From: Strand, Christopher P [mailto:cpstrand@wch-rcc.com]
Sent: Wednesday, September 04, 2013 9:50 AM
To: Einan, Dave
Subject: RE: Off-Site Acceptability Determination for 151B and 151D Substations

Good morning Dave,

Have you had any luck with the West Virginia destination facility? We are about two weeks out before the

subcontractor begins to mobilize.

Thanks,

Chris
554-2720

From: Einan, Dave [mailto:Einan.David@epa.gov]
Sent: Wednesday, August 21, 2013 8:00 AM
To: Strand, Christopher P
Subject: RE: Off-Site Acceptability Determination for 151B and 151D Substations

Chris—

I've heard back about all of the facilities except the West Virginia, and they are all currently acceptable. I'll let you know as soon as I hear about WV.

Dave Einan
509-376-3883

From: Strand, Christopher P [mailto:cpstrand@wch-rcc.com]
Sent: Wednesday, August 07, 2013 10:15 AM
To: Einan, Dave
Cc: Guzzetti, Christopher; Bond, Fredrick W; Guercia, Rudolph F
Subject: FW: Off-Site Acceptability Determination for 151B and 151D Substations

Dave,

Clarification from the subcontractor is provided immediately below. The New Jersey and Georgia facilities will not be used. Let me know if this is sufficient for you to continue your evaluation.

Thanks,

Chris
554-2720

From: Les Joel [mailto:ljoel@transformertechnologies.com]
Sent: Wednesday, August 07, 2013 10:02 AM
To: Hynes, Robert T
Subject: RE: Off-Site Acceptability Determination for 151B and 151D Substations

Bob - here is clarification:

- Any oil or equipment will ONLY be shipped to TCI of Alabama - EPA ID already supplied
- All equipment received by TCI of Alabama is processed on site - waste products sent to the Waste Management landfill - EPA ID already supplied
- All oil received by TCI of Alabama is sent to either EPS in West Virginia or Veolia in Texas - EPA ID already supplied

No facility in New Jersey or Georgia will be utilized.

Sincerely,

Les Joel
General Manager

Transformer Technologies

www.transformertechnologies.com

(503) 880-0608 Cell
(503) 364-5476 Office

From: Hynes, Robert T [mailto:rthynes@wch-rcc.com]
Sent: Wednesday, August 07, 2013 9:47 AM
To: Les Joel
Subject: FW: Off-Site Acceptability Determination for 151B and 151D Substations

Les

Chris Strand, WCH Environmental Lead for the project, asked for some additional information (requested by EPA). Please take a look at the thread below and check its accuracy and provide me some additional information.

Thank you.

Bob

From: Strand, Christopher P
Sent: Wednesday, August 07, 2013 9:10 AM
To: Hynes, Robert T
Subject: FW: Off-Site Acceptability Determination for 151B and 151D Substations

Bob,

FYI - can you be of assistance in getting the ID numbers below?

Thanks,

Chris
554-2702

From: Einan, Dave [mailto:Einan.David@epa.gov]
Sent: Wednesday, August 07, 2013 8:05 AM

To: Strand, Christopher P
Cc: Guzzetti, Christopher; Guercia, Rudolph F; Bond, Fredrick W
Subject: RE: Off-Site Acceptability Determination for 151B and 151D Substations

Chris—

I quickly glanced at the website for the Salem facility, and it looks like they are going to trans-ship the oil to either Georgia or New Jersey. Can you get me the EPA id numbers for those? I'll need to check them, as well.

Dave Einan
509-376-3883

From: Strand, Christopher P [mailto:cpstrand@wch-rcc.com]
Sent: Tuesday, August 06, 2013 7:41 AM
To: Einan, Dave; Guzzetti, Christopher; Guercia, Rudolph F; Bond, Fredrick W
Subject: RE: Off-Site Acceptability Determination for 151B and 151D Substations

Dave,

One clarification on the information provided below; dechlorination is being used to support decharacterizing the oil for treatment and disposal, not recovery and reuse.

My apologies for any confusion,

Chris
554-2720

From: Strand, Christopher P
Sent: Tuesday, August 06, 2013 7:14 AM
To: Einan, David R; Guzzetti.Christopher@epamail.epa.gov; Guercia, Rudolph F; Bond, Fredrick W
Subject: Off-Site Acceptability Determination for 151B and 151D Substations

Dave,

Provided on DOE's behalf is the following information to support an Off-Site Acceptability Determinationin accordance with 40 CFR 300.440 and the *Removal Action Work Plan for River Corridor General Decommissioning Activities*, DOE/RL-2010-34, Revision 2. Work scope includes transport off-site of PCB contaminated electrical equipment and associated oils from substation components located at the 151B and 151D facilities. An estimated total of 1,600 gallons of oil exists in facility components. Metal (both ferrous and nonferrous) will be decontaminated for recycle. In addition, PCB contaminated oils will be treated/dechlorinated for recovery and re-use. Destination facilities for the various waste streams are identified on the attachment with the primary company contact identified below. It is intended to initiate removal actions and off-site shipments this fall (September/October timeframe).

If EPA requires any additional information, please do not hesitate to contact me.

Thanks,

Chris
554-2720

Les Joel
General Manager

Transformer Technologies

www.transformertechnologies.com

(503) 880-0608 Cell
(503) 364-5476 Office

Attachment 4

Radiological Scoping Surveys Performed Subsequent to 151D Switchgear Building Demolition (5 pages)

RADIOLOGICAL SURVEY RECORD

Type of Survey		Survey #
☐ Routine	☒ Work Progress	RSR – 100n-13-0487

RWP # / Rev. #	Date	Time	Location
n/a	05-11-13	0800	100d/151d switch yard

Description
performed a verification survey of 151d electrical switch yard

References: (e.g., SRTA, ASER, LASER, RSP, Work Package)
ta-07-sr-02/rev. 3 sp-12-22rev. 0

performed a verification survey of 151d switch yard; accomplished utilizing radiological survey plan (listed above);
125 tech. wipe smears and approximately 125 direct surveys were performed; tech. wipes and direct surveys were taken in random areas/equipment inside the switch yard; special attention to bird,rodent, insect nests, rusted items and tracks; all readings indicated no contamination above back ground levels; due to the immense and complexity of the 151d switch yard, reproducing locations of survey data points, no diagram is included in survey report.

CA Contamination Area	HCA High Contamination Area	RBA Radiological Buffer Area	ARA Airborne Radioactivity Area	[AS] Air Sample Location	RMA Radioactive Materials Area	RA Radiation Area	HRA High Radiation Area	VHRA Very High Radiation Area

○ Technical Smear	# Direct	M Large Area Wipe	T Transferable	General Area Dose Rates =Uncorrected Meter Reading (mR/hr)	All radiation readings are γ dose rates in units of mR/hr unless otherwise indicated	Contact 30cm	N Neutron (mRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
2224-3/43-94	scllb-0110/dtllp-0010	01-29-14	2224-3/43-93	scll9-0003/dtllp-0115	09-06-13
n/a			n/a		
n/a			n/a		

RCT Name/Signature/Date:
baird/05-11-13
culver/05-11-13

RCT Supervisor Name/Signature/Date:
5/11/13

RCT signature indicates portable instruments checked IAW RC-300-2.1

151D Primary Electrical Substation

RADIOLOGICAL SURVEY RECORD

Survey # RSR - 100n-13-0487

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β–γ	β–γ C-F	α	α C-F	β–γ	β–γ C-F
1-125	all tech. wipes/direct surveys	<20	7	<1k	10	<100	7	<5k	10
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									
n/a									

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

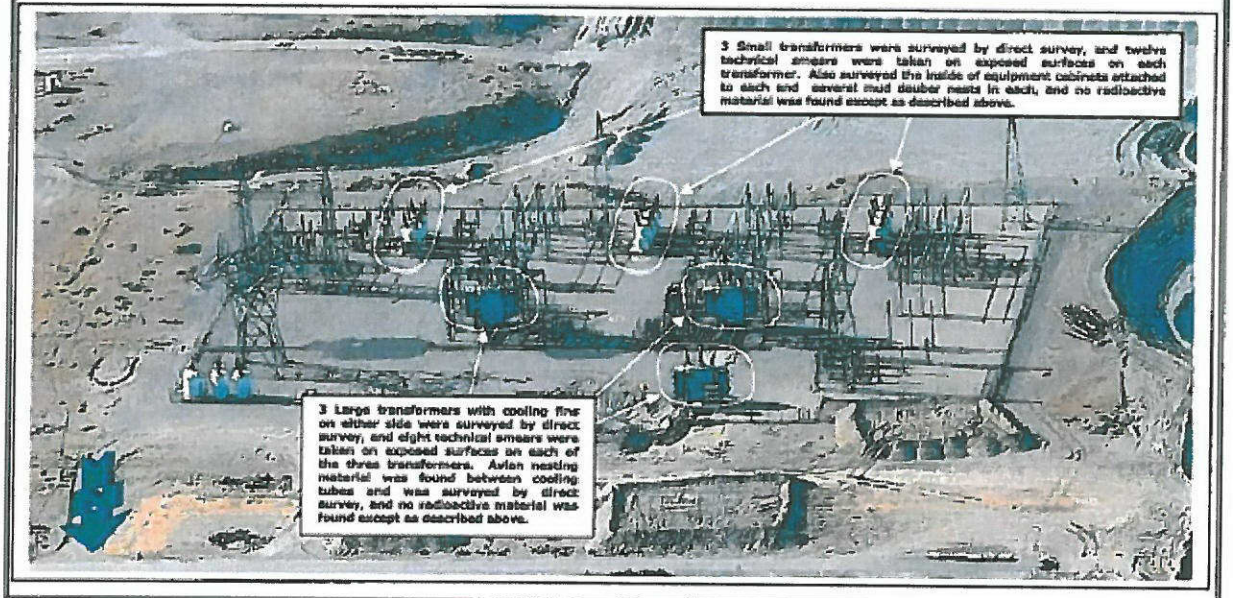
Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
n/a				
n/a				
n/a				
n/a				
n/a				
n/a				
n/a				
n/a				

RADIOLOGICAL SURVEY RECORD

Type of Survey:		Survey #:
☐ Routine ☒ Work Progress		RSR – 100N-13-0716
RWP # / Rev. #: NA	Date: 06-27-2013 / Time: 1500	Location: 100N/ 151D Switchyard
Description: Scoping Survey Above 6 Feet at 151D Switchyard		
References: (e.g., SRTA, ASER, LASER, RSP, Work Package) TA-07-SR-02/ Revision 3; RSP # SP-12-22/ 0		

Scoping Survey above 6 Feet @ 151D Switchyard

Aerial photo below shows an overall view of the areas surveyed looking south with detail showing the location of specific surveys. Direct surveys of the ceramic insulators on the transformers showed 1,500-3,000 dpm/100cm² βγ, with no detectable α contamination on a 2 minute static count. All insulators surveyed were within the above range. Each insulator was also surveyed by technical smear and no removable contamination was found. See insulator detail on page 3.



CA Contamination Area	HCA High Contamination Area	RBA Radiological Buffer Area	ARA Airborne Radioactivity Area	[AS] Air Sample Location	RMA Radioactive Materials Area	RA Radiation Area	HRA High Radiation Area	VHRA Very High Radiation Area

○ Technical Smear	# Direct	M Large Area Wipe	T Transferable	General Area Dose Rates =Uncorrected Meter Reading (mR/hr)	All radiation readings are γ dose rates in units of mR/hr unless otherwise indicated	Contact / 30 cm	N Neutrons (nRem/hr)	Δ Micro Rem (μR/hr)	SCA Soil Contamination Area	Radiological Boundary X—B—X

Instruments

Model	ID #	Cal Due Date	Model	ID #	Cal Due Date
L-2360/43-93	SCLLB-0075/DTLLP-0176	05-21-2014 05-21-2014	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
GL Epping/ /06-27-2013	Mark Walden /MWalden/ 7/2/13

RCT signature indicates portable instruments checked IAW RC-300-2.1

151D Primary Electrical Substation

RADIOLOGICAL SURVEY RECORD

Survey #: RSR -100N-13-0716

Contamination Measurement Information[1]

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²)				Total (dpm/100 cm²)			
		α	α C-F	β-γ	β-γ C-F	α	α C-F	β-γ	β-γ C-F
All	Technical smears and directs	< 20	6.3	< 1,000	10	< 500	6.3	< 5,000	10
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] Unless stated otherwise in the "References" section, exempted β-γ (i.e., C-14, Fe-55, Ni-59, Ni-63, Se-79, Tc-99, Pd-107, Eu-155) contamination levels are ≤ 10 times the β-γ contamination levels shown above.

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings		30 cm Readings	
	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR	β (mrad/hr) (WO-WC) X CF = DR	γ (mR/hr) WC X CF = DR
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA
NA	NA	NA	NA	NA

RADIOLOGICAL SURVEY RECORD (continuation)

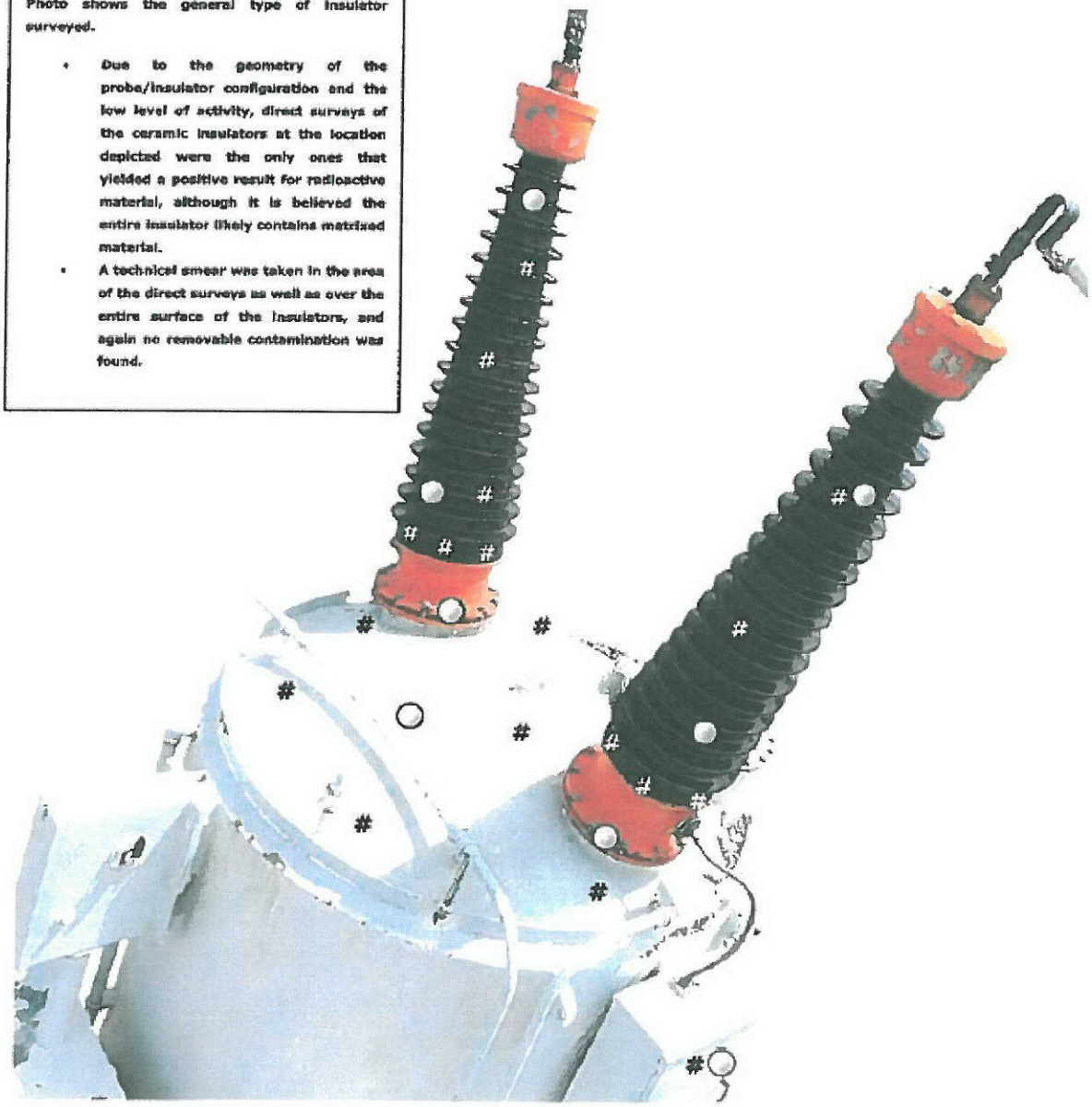
Survey #: RSR-100N-13-0716

Additional Information
(Drawing, Map, Etc.)

Photo of Insulators

Photo shows the general type of insulator surveyed.

- Due to the geometry of the probe/insulator configuration and the low level of activity, direct surveys of the ceramic insulators at the location depicted were the only ones that yielded a positive result for radioactive material, although it is believed the entire insulator likely contains matrixed material.
- A technical smear was taken in the area of the direct surveys as well as over the entire surface of the insulators, and again no removable contamination was found.



151D Primary Electrical Substation

Attachment 5

Post-Demolition Visual Inspection of 151D Switch Yard (3 pages)

174454

^WCH Document Control

From: McCurley, Clay D
Sent: Wednesday, January 29, 2014 3:44 PM
To: ^WCH Document Control
Subject: Post Demolition Visual Inspection of 151-D Switchyard

Attachments: Visual Inspection Photos 151-D Switchyard 01-16-2014.doc

Folks. Please chron this email with its attachment (in color) per the subject and let me know which CCN has been assigned. Thanks. Clay

From: McCurley, Clay D
Sent: Wednesday, January 29, 2014 12:12 PM
To: Allen, Mark E
Subject: Post Demolition Visual Inspection of 151-D Switchyard

Mark. I conducted a visual inspection of the 151-D switch yard earlier this month. This email documents my findings. I did not observe any anomalies. Attached are photographs I took of the switch yard while I was there. We left two concrete vaults (located between the primary substation building and the oil circuit breaker (OCB) pads on the south end of the switch yard) which were greater-than 3-feet below-grade. Backfill material was placed in the larger excavated hole to eliminate safety concerns associated with steepened edges (see Photo 1 in attachment 2). The rest of the area was slightly wet (from heavy morning dew) which made it difficult to determine if soil discoloration was due to oil or water. The two ground stains, visible in historical aerial photos along the railroad spur, were not obvious although I did observe some discoloration in that area that could have been one of the stains. A review of recent aerial photos shows the stains were covered during or soon after completing demolition of the 151-D primary substation building in April, 2013. The rest of the area appears clean.

Contact me if you have any questions.
Clay

Visual Inspection Photos 151-D...

Post-Demolition Visual Inspection of 151D Switchyard
January 16, 2014

Photo 1. Backfill material over below-grade vault near southwest corner of yard.

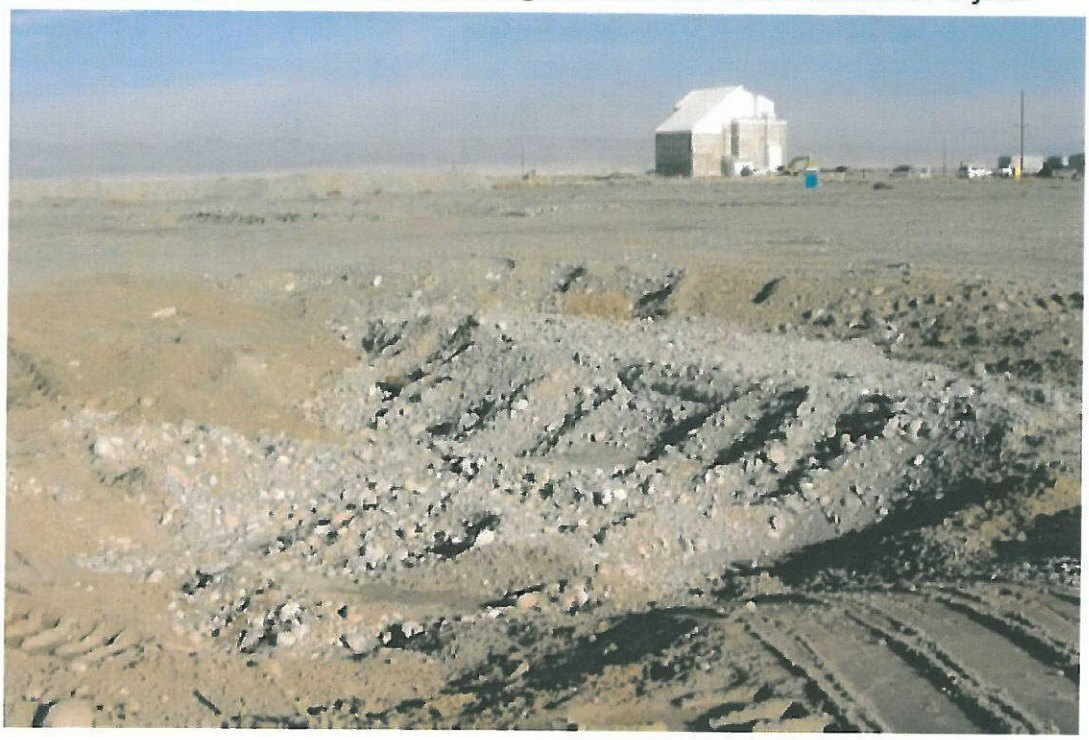
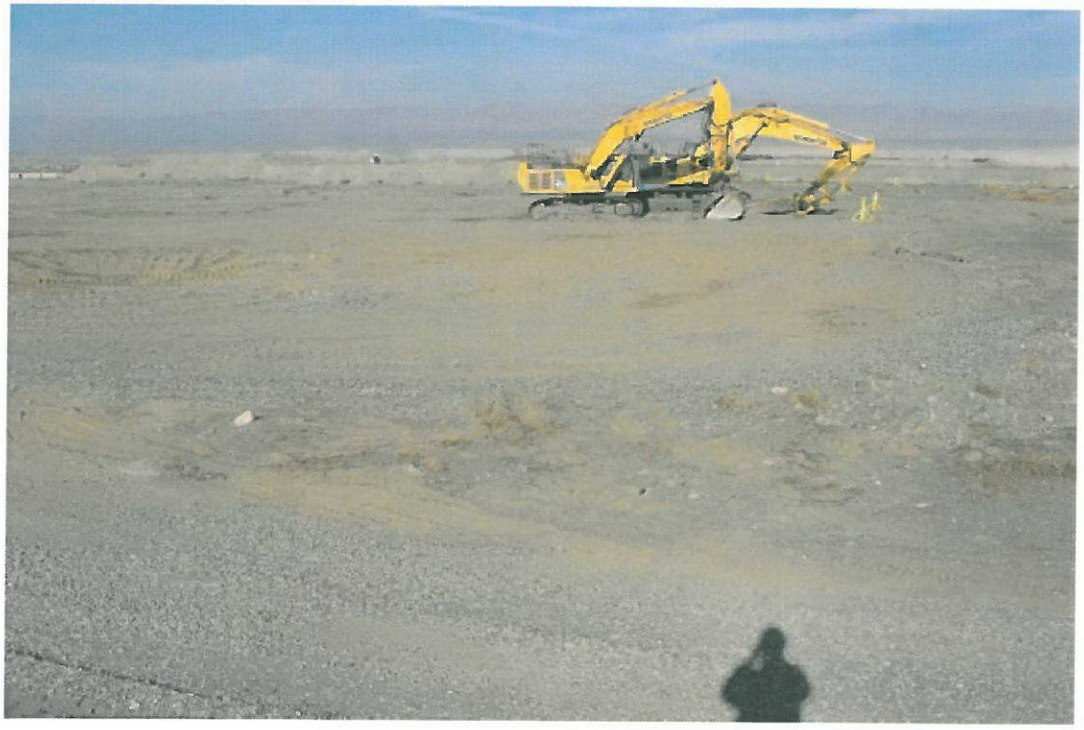


Photo 2. Former switch yard facing northeast from southwest corner

Post-Demolition Visual Inspection of 151D Switchyard
January 16, 2014

Photo 3. Former switch yard facing northwest from southeast corner.

Photo 4. Former switch yard facing north from southeast corner.



Attachment 6

151D Switch Yard GPS Surveys (6 pages)

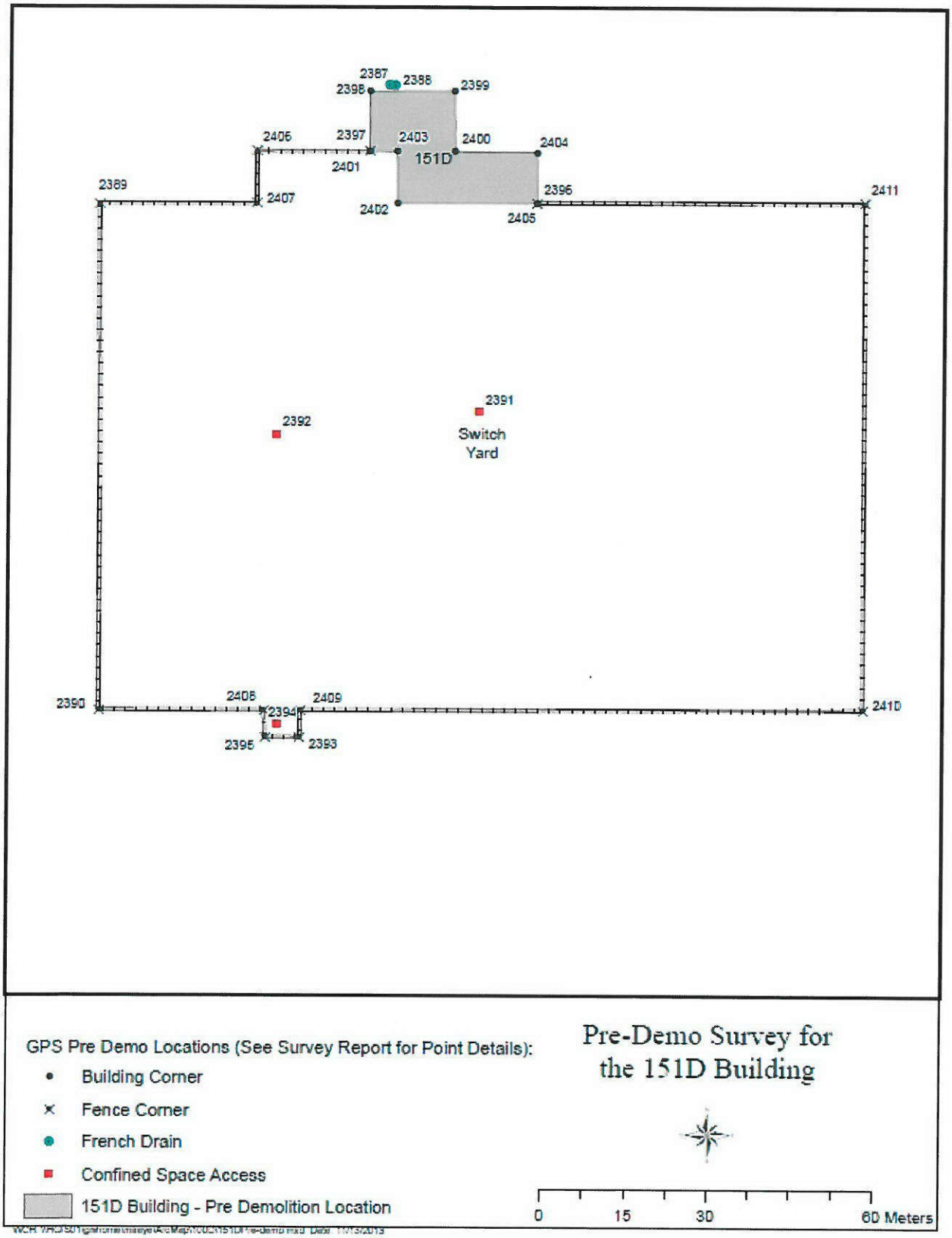
GPS Pre-Demo Survey Report for the 151D Building

Project : 100D-020713

User name	maaye	**Date & Time**	11:58:44 AM 4/16/2013
Coordinate System	US State Plane 1983	**Zone**	Washington South 4602
Project Datum	(WGS 84)		
Vertical Datum	NAVD88	**Geoid Model**	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

```
Survey Project Name:        Pre-Demo Mapping for the 151D Building
Date:                       2/11/2013
Equipment:                  5800
Survey Purpose:             Map building corners and surrounding features
Requested By:               Mark Allen
Location:                   100D
Charge Code:
Field Surveyor:             Margo Aye
Survey Software Used:       Trimble Survey Controller, and  Geomatics Office V.11
Survey Equipment Used:      5800
Control Monuments Used:     HSWB-044
Survey Method:              RTK
Horizontal Precision:       .020m
Vertical Precision:         .050m
Fieldwork Start Date:       2/7/13
Fieldwork Completion Date:  2/7/13
Notes:
```

name_id	Feat_Code	Northing	Easting	Elevation
2387	French Drain	151393.668	573520.119	142.81
2388	French Drain	151393.756	573519.001	142.762
2389	fence-corner	151372.334	573466.958	142.987
2390	fence-corner	151280.684	573467.262	143.293
2391	conf-space-axs	151334.663	573535.503	142.688
2392	conf-space-axs	151330.459	573499.079	142.738
2393	fence-corner-top	151275.723	573503.475	143.232
2394	fence-corner-top	151275.77	573497.205	143.26
2395	conf-space-axs	151278.137	573499.412	143.06
2396	fence-end	151372.496	573545.873	142.795
2397	fence-end	151381.795	573515.431	142.728
2398	building corner	151392.692	151392.692	142.703
2399	building corner	151392.741	151392.741	142.688
2400	building corner	151381.757	151381.757	142.786
2401	building corner	151381.804	151381.804	142.728
2402	building corner	151372.401	151372.401	142.682
2403	building corner	151381.789	151381.789	142.728
2404	building corner	151381.711	151381.711	142.759
2405	building corner	151372.481	151372.481	142.796
2406	fence-corner	151381.867	151381.867	142.623
2407	fence-corner	151372.371	151372.371	142.664
2408	fence-corner	151280.59	151280.59	142.853
2409	fence-corner	151280.608	151280.608	142.897
2410	fence-corner	151280.882	151280.882	142.641
2411	fence-corner	151372.669	151372.669	142.722



151D Primary Electrical Substation

GPS Post Demo Survey Report for 151-D Switch Yard

Project : Post-substation

Job 1264

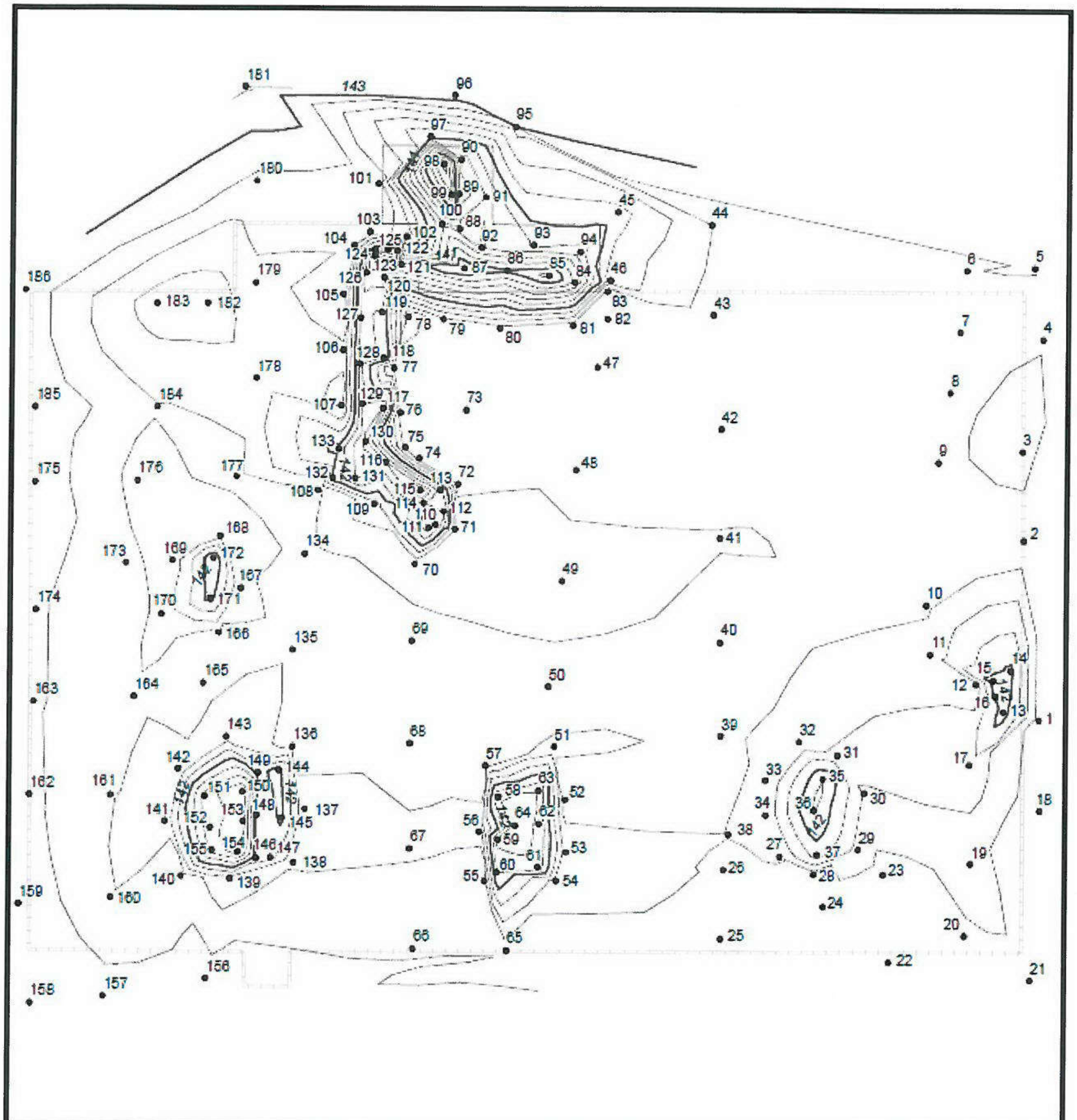
User name	maaye	**Date & Time**	4:22:40 PM 1/20/2014
Coordinate System	US State Plane 1983	**Zone**	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum		**Geoid Model**	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: 151D Switch Yard
Date: 1/20/2014
Equipment: 5800
Survey Purpose: Map the post demo excavation
Requested By: Mark Allen
Location: 100D
Charge Code:
Field Surveyor: Margo Aye
Survey Software Used: Trimble Geomatics V1.63
Survey Equipment Used: 5800
Control Monuments Used: D-Hanford Monument (at Gravel pit)
Survey Method: RTK
Horizontal Precision: .020m
Vertical Precision: .050m
Fieldwork Start Date: 11/16/14
Fieldwork Completion Date: 11/16/14
Notes: Because the excavation was so shallow and flat, most points are considered "daylight". The 151D (building) post demo survey was done prior to this , however I recorded the area again as conditions had changed in the building area.

Name	Northing	Easting	Elevation	Feature Code	Description
1	151313.222m	573607.532m	142.693m	top	
2	151338.171m	573605.237m	142.769m	top	
3	151350.498m	573605.020m	142.472m	top	
4	151366.103m	573607.753m	142.619m	top	
5	151376.016m	573606.520m	142.817m	top	
6	151375.606m	573597.146m	142.795m	top	
7	151367.098m	573596.318m	142.647m	top	
8	151358.716m	573594.989m	142.672m	top	
9	151348.925m	573593.389m	142.673m	top	
10	151329.144m	573591.777m	142.633m	top	
11	151322.233m	573592.438m	142.504m	top	
12	151318.136m	573598.823m	142.458m	top	
13	151314.335m	573602.595m	141.902m	top	
14	151320.037m	573603.550m	141.956m	top	
15	151318.679m	573601.195m	141.915m	top	
16	151316.497m	573601.478m	141.948m	top	
17	151306.884m	573597.934m	142.272m	top	
18	151300.618m	573607.660m	142.754m	top	
19	151293.190m	573598.214m	142.539m	top	
20	151283.190m	573597.333m	142.621m	top	
21	151276.997m	573606.462m	142.640m	top	
22	151279.481m	573596.888m	142.635m	top	
23	151291.630m	573586.021m	142.680m	top	
24	151287.105m	573577.706m	142.711m	top	
25	151282.528m	573563.375m	142.716m	top	
26	151292.171m	573563.734m	142.622m	top	
27	151294.071m	573571.624m	142.590m	top	
28	151291.644m	573576.328m	142.600m	top	
29	151295.118m	573582.568m	142.678m	top	
30	151302.922m	573583.318m	142.422m	top	
31	151308.157m	573579.584m	142.331m	top	
32	151310.000m	573574.228m	142.563m	top	
33	151304.634m	573569.549m	142.590m	top	

34	151299.750m	573569.610m	142.555m	top
35	151304.807m	573577.555m	141.802m	top
36	151300.550m	573576.280m	141.775m	top
37	151294.361m	573576.789m	142.108m	top
38	151297.072m	573564.379m	142.598m	top
39	151310.767m	573563.279m	142.617m	top
40	151323.787m	573563.072m	142.674m	top
41	151338.315m	573562.939m	142.588m	top
42	151353.453m	573563.052m	142.740m	top
43	151369.314m	573561.881m	142.694m	top
44	151381.796m	573561.518m	142.599m	top
45	151383.597m	573548.428m	142.136m	top
46	151374.094m	573547.342m	142.287m	top
47	151361.950m	573545.687m	142.662m	top
48	151347.699m	573542.833m	142.685m	top
49	151332.189m	573540.969m	142.496m	top
50	151317.524m	573539.155m	142.677m	top
51	151309.236m	573540.044m	142.580m	top
52	151301.772m	573541.568m	142.675m	top
53	151294.527m	573541.710m	142.498m	top
54	151290.606m	573540.165m	142.468m	top
55	151290.541m	573530.462m	142.662m	top
56	151297.349m	573529.643m	142.575m	top
57	151306.548m	573530.514m	142.631m	top
58	151302.178m	573532.166m	141.622m	top
59	151296.331m	573532.280m	141.530m	top
60	151291.758m	573532.179m	141.801m	top
61	151292.461m	573537.790m	141.653m	top
62	151298.481m	573537.941m	141.628m	top
63	151303.084m	573537.870m	141.610m	top
64	151298.288m	573536.655m	141.492m	top
65	151280.866m	573533.536m	142.743m	top
66	151281.031m	573520.558m	142.752m	top
67	151294.942m	573520.008m	142.578m	top
68	151309.566m	573519.912m	142.640m	top
69	151323.902m	573520.138m	142.657m	top
70	151334.526m	573520.453m	142.537m	top
71	151339.385m	573526.077m	142.610m	top
72	151345.693m	573526.420m	142.673m	top
73	151355.949m	573527.521m	142.625m	top
74	151349.269m	573520.944m	142.715m	top
75	151350.784m	573519.101m	142.695m	top
76	151355.601m	573518.348m	142.677m	top
77	151361.781m	573517.429m	142.645m	top
78	151368.910m	573519.388m	142.990m	top
79	151368.623m	573524.217m	142.626m	top
80	151367.332m	573532.118m	142.696m	top
81	151367.745m	573542.275m	142.727m	top
82	151368.763m	573547.001m	142.802m	top
83	151372.523m	573547.011m	142.723m	top
84	151373.760m	573542.456m	141.249m	toe
85	151374.685m	573538.838m	140.744m	toe
86	151375.378m	573533.065m	140.975m	toe
87	151375.637m	573527.102m	140.794m	toe
88	151381.165m	573526.438m	141.709m	top
89	151386.035m	573526.312m	141.272m	top
90	151390.763m	573526.539m	141.486m	top
91	151385.528m	573530.100m	141.611m	top
92	151378.523m	573529.451m	141.587m	top
93	151378.961m	573536.717m	141.823m	top
94	151378.001m	573543.174m	141.721m	top
95	151395.323m	573534.154m	142.668m	top
96	151399.741m	573525.662m	143.130m	top
97	151393.973m	573522.221m	143.038m	top
98	151390.126m	573524.131m	140.309m	toe
99	151385.943m	573525.208m	140.624m	toe
100	151381.849m	573523.879m	141.652m	top
101	151387.384m	573515.102m	142.691m	top
102	151380.041m	573519.044m	142.517m	top
103	151380.709m	573513.935m	142.698m	top
104	151378.822m	573511.838m	142.615m	top
105	151372.016m	573510.305m	142.690m	top
106	151364.289m	573510.279m	142.583m	top
107	151356.546m	573510.135m	142.624m	top
108	151344.728m	573507.021m	142.624m	top
109	151342.811m	573514.820m	142.287m	top
110	151339.582m	573522.289m	141.489m	toe

111	151340.051m	573523.298m	141.380m	toe
112	151341.886m	573524.410m	141.624m	toe
113	151344.792m	573523.968m	141.707m	toe
114	151343.071m	573521.637m	141.602m	toe
115	151344.786m	573521.154m	141.128m	toe
116	151348.708m	573516.326m	141.394m	toe
117	151356.214m	573515.906m	141.391m	toe
118	151363.210m	573515.999m	141.822m	toe
119	151369.513m	573515.653m	141.830m	toe
120	151374.398m	573515.901m	141.507m	toe
121	151376.209m	573518.251m	141.144m	toe
122	151378.051m	573517.793m	141.220m	toe
123	151377.316m	573514.642m	141.177m	toe
124	151378.155m	573514.665m	141.842m	conc-top
125	151378.310m	573516.431m	141.835m	conc-top
126	151374.982m	573513.518m	141.479m	toe
127	151368.748m	573512.772m	141.763m	toe
128	151362.329m	573512.592m	141.737m	toe
129	151356.781m	573513.035m	141.594m	toe
130	151351.544m	573513.506m	141.349m	toe
131	151346.462m	573512.149m	141.595m	toe
132	151346.533m	573509.058m	141.903m	toe
133	151350.450m	573509.799m	141.929m	toe
134	151335.959m	573505.237m	142.653m	top
135	151322.563m	573503.684m	142.618m	top
136	151309.069m	573503.759m	142.642m	top
137	151300.448m	573505.475m	142.552m	top
138	151292.973m	573503.953m	142.580m	top
139	151290.703m	573495.100m	142.458m	top
140	151291.074m	573488.330m	142.706m	top
141	151298.730m	573486.018m	142.548m	top
142	151305.987m	573487.868m	142.574m	top
143	151310.459m	573494.468m	142.587m	top
144	151305.780m	573501.763m	141.928m	top
145	151299.145m	573502.305m	141.969m	top
146	151293.673m	573500.740m	142.135m	top
147	151293.602m	573498.749m	142.112m	top
148	151299.545m	573498.829m	142.145m	top
149	151305.462m	573498.941m	142.064m	top
150	151302.773m	573496.787m	141.220m	toe
151	151302.132m	573491.592m	141.490m	toe
152	151297.831m	573492.297m	141.435m	toe
153	151298.749m	573496.938m	141.322m	toe
154	151294.425m	573496.123m	141.334m	toe
155	151294.652m	573492.627m	141.485m	toe
156	151276.818m	573491.835m	142.907m	top
157	151274.322m	573477.610m	142.889m	top
158	151273.411m	573467.424m	142.965m	top
159	151287.209m	573465.722m	142.963m	top
160	151288.111m	573478.500m	142.605m	top
161	151302.253m	573478.464m	142.605m	top
162	151302.315m	573467.144m	142.846m	top
163	151315.304m	573467.683m	142.827m	top
164	151316.034m	573481.672m	142.611m	top
165	151317.943m	573491.284m	142.649m	top
166	151324.930m	573493.345m	142.604m	top
167	151331.117m	573496.363m	142.584m	top
168	151338.339m	573493.475m	142.456m	top
169	151334.980m	573486.858m	142.522m	top
170	151327.470m	573485.383m	142.574m	top
171	151329.776m	573492.129m	141.925m	top
172	151335.253m	573492.562m	141.834m	top
173	151334.615m	573480.412m	142.645m	top
174	151328.082m	573467.975m	142.825m	top
175	151345.847m	573467.692m	142.929m	top
176	151346.050m	573481.948m	142.538m	top
177	151346.685m	573495.718m	142.653m	top
178	151360.311m	573498.356m	142.513m	top
179	151373.575m	573498.222m	142.542m	top
180	151387.746m	573498.272m	142.755m	top
181	151400.841m	573496.562m	143.220m	top
182	151370.751m	573491.490m	142.279m	top
183	151370.700m	573484.526m	142.291m	top
184	151356.293m	573484.614m	142.612m	top
185	151356.266m	573467.673m	142.960m	top
186	151372.525m	573466.165m	142.917m	top
d-han-mon1	150848.702m	573855.276m	143.923m	cp



GPS Point Locations:

- See Survey Report for Point Details

Major Contour Interval 1 meters

Minor Contour Interval .2 meters

151D Building Location- (Pre Demolition)

151D Perimeter Fence (Pre-Demolition)

Post Demo Survey for the 151D Switch Yard

0 10 20 40 Meters